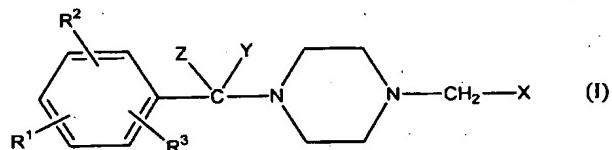


WHAT IS CLAIMED IS:

1. A method for treatment of a mammal threatened or afflicted by Alzheimer's disease, by administering to said mammal an effective amount of a compound of formula I:



wherein:

a) R¹, R² and R³ are individually H, OH, halo, (C₁-C₆)alkyl, (C₁-C₆)alkoxy, (C₃-C₆)cycloalkyl, (C₃-C₆)cycloalkyl((C₁-C₆)alkyl), (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, (C₁-C₆)alkanoyl, halo(C₁-C₆)alkyl, hydroxy(C₁-C₆)alkyl, (C₁-C₆)alkoxycarbonyl, (C₁-C₆)alkylthio, thio(C₁-C₆)alkyl, (C₁-C₆)alkanoyloxy, N(R⁶)(N⁷) wherein R⁶ and R⁷ are individually H, O, (C₁-C₆) alkyl, (C₃-C₆)cycloalkyl, (C₃-C₆)cycloalkyl(C₁-C₆)alkyl, phenyl or benzyl, or R⁶ and R⁷, together with the N to which they are attached form a 5- or 6-membered ring, optionally comprising 1-2 S, N(R⁶) or nonperoxide O, or R¹ and R² together are methylenedioxy;

b) Y and Z together are =O, -O(CH₂)_mO- or -(CH₂)_m- wherein m is 2-4, or Y is H and Z is OR⁹ or SR⁹, wherein R⁹ is H or (C₁-C₄)alkyl;

c) X is (C₁-C₆)alkyl, (C₁-C₆)alkoxy, hydroxyl(C₁-C₆)alkyl (C₃-C₁₂)alkenyl, (C₂-C₆)alkynyl, carboxy, (C₁-C₆)alkoxycarbonyl, thio(C₁-C₆) alkyl, (C₃-C₁₂)heterocyclo, (C₃-C₁₂) heterocycloalkyl(C₁-C₆) alkyl, aryl or heteroaryl, optionally substituted by 1, 2 or 3 R¹;

and the pharmaceutically acceptable salts thereof.

2. The method of claim 1 wherein the amount is effective to inhibit A β peptide-induced neurotoxicity.

3. The method of claims 1 or 2 wherein the amount is effective to inhibit A β_{1-42} neurotoxicity.

4. The method of claims 1-3 wherein the amount is effective to inhibit glutamate-induced neurotoxicity in said mammal.
5. The method of claims 1-4 wherein the amount is effective to maintain ATP levels in neuronal cells in said mammal.
6. The method of claim 5 wherein the cells are contacted *in vitro*.
7. The method of claim 5 wherein the cells are contacted *in vivo*.
8. The method of claims 1-5 or 7 wherein the compound of formula I is administered to a human.
9. The method of claim 8 wherein the human is in an early stage of AD.
10. The method of claim 8 wherein the human is an AD patient.
11. The method of claims 1-10 wherein R¹, R² or R³ is N(R⁶)(R⁷).
12. The method of claims 1-11 wherein R² is (C₁-C₆)alkoxy.
13. The method of claims 1-12 wherein R³ is (C₁-C₆)alkoxy.
14. The method of claims 1-10 or 12-13 wherein each of R¹, R² and R³ is (C₁-C₃)alkoxy.
15. The method of claims 1-14 wherein Y and Z together are =O.
16. The method of claims 1-14 wherein Y is H and Z is OH.
17. The method of claims 1-16 wherein X is (C₁-C₆)alkyl.

18. Method of claims 1-17 wherein X is CH₃.
19. The method of claims 1-5 and 7-18 wherein the compound of formula I is administered orally.
20. The method of claims 1-5 and 7-18 wherein the compound of formula I is administered parenterally.
21. The method of claims 1-20 wherein the compound of formula (I) is administered in combination with a pharmaceutically acceptable carrier.
22. The method of claim 21 wherein the carrier is a liquid, suspension or gel.
23. The method of claim 21 wherein the carrier is a solid.
24. The method of claims 1-23 wherein the compound of formula I is [(2,3,4-trimethoxy)phenyl]-[4-ethylpiperazin-1-yl] methanone.
25. A composition comprising a compound of formula (I) in combination with a pharmaceutically-acceptable carrier.
26. A therapeutic method to treat a neuropathy that involves a glutamate network or pathway hyperactivity comprising administering to a mammal threatened with, or afflicted by, said neuropathy, an effective amount of a compound of formula (I).
27. Use of a compound of formula (I) to prepare a medicament to treat at least one AD symptom.